Notebook Series -- Pocket Notebooks
Notebook, PN-17-08-29

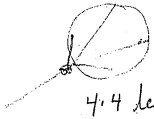
The dated entries in this pocket notebook cover the period August-September 1917. The book was used by Edison for notes pertaining primarily to war-related experiments. Included are experiments on sound detection devices and other means of locating submarines. There are also references to a "kite rudder" that would enable Allied ships to turn more quickly in case of an emergency; Lyle gun projectiles; smokescreens that might enable ships to conceal themselves from enemy submarines; and other camouflaging devices. Much of the research was conducted aboard the yacht *Rampant* and the Navy warship USS *Sachem* in Long Island Sound. Also included is a notation regarding a meeting in Washington, D.C., with President Woodrow Wilson on August 20, 1917. Some entries appear to be transcriptions of entries from PN-17-04-27. Among the employees who assisted Edison were Isidor (Jerry) Chesler, John A. Hanley, Absalom M. Kennedy, Benjamin Liebowitz, Sherwood T. (Sam) Moore, and Frederick P. Ott. There are also several references to artist Orlando Rouland, who participated in some of the experiments. The pages are unnumbered. Approximately 160 pages have been used.

[1]

67-80-41

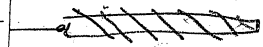
200) 52800 (264
400
1280
1200
800

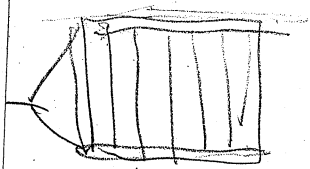
60) 264 (4.4
240
24

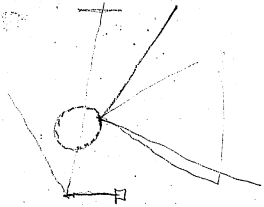


4.4 lengths mice

2.2





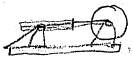


#2996

Make 7 ft wire cabinet steel cabinet * also
lookout for hand bombs thrown in Road

Mobile Mud shoes -

Wheel 200 lbs Explosive, fire
when ready or clear from machine



Condition: detector - microfone hear
tunnelling -

Moore

Amplifying lever for cracks
phone

Cargo boats 11 Knots. Submarine
only 11 to 12 underwater cant catch
them, so statement about dead
reckoning is false = its difficult
for sub to get in position for a
Cargo boat with guns.
Think we should listen with
28 ft funnel for subs running
on top -

Dims says difficult see Sub on
account dark background of water
= Remedy is silhouette Vision
Says German Torpedoes range
1000 to 2000 yards — Speed
sub 10 Knots below 15 above
bubbles show 150 ft behind
Torpedo
Says German have a
transparent observation balloon
at sea can see 50 miles —
Says periscopes vibrates bad
so only see Warship 6 miles
Industrial, are objects, so sub chasers
(5)

are seldom seen at much distance when sea rolls –

German subs only charge in day as noise too much at night & dischargers get them,

Notes, bending of periscope also Effect of water on Conning Tower must vibrate deck + give a note also the gyroscope + possibly Commutators, If pumps Thump we must get high vibration rate as a noise –

Try Silhouette with telescope through Port holes.

Make some dummy periscope 4' long + paint white for test on Sachem –

Shoot annoying oils projectile to smudge periscopes as well as smoke shells – When the go down + then come up can't see anything till boat is all up + may catch them –
Sharpnel may break periscope glass – This will stop or delay them from shooting a 2nd Torpedo when 1st one fails by quick turning

If can hear commutators of German sub at 10 knots running submerged well be 400 to 800 second on each shaft,
Look out for pump knocks –

Automatic Controlled Machine gun at distance by Elec + discharging device if hable to be employed

12" piece glass smoked, part 2 together
1/1000" apart. use eye piece or amplifying
lense + test for periscope in authomatic)

Multiple telegraph system
10 forks, self vibrated in front of
phones, phones in Multiple or
series keys short ckt, such
10 phones at receiving end working
Tuned air Column with listening
tubes, Morse Code

For good funnel paper
should .050 per inch of length

Why does our funnel vibrate
to Certain notes strongly when
held in hand ~~and~~ not to others
Yet the funnel is not in tune
with anything on record
Strange, mockingbird,
Use Piano

Want signal from Earth 1st line
trenches 1 mile minimum.

French hear sub 5 Kilometers when
sea quiet & boat stopped —
Only 500 meters when sea rough
& nothing when boat running.
English the same

If Can destroy barbed wire, men
only need fear bullets + hand
grenades — wire entanglements
50 to 100 meters deep
2½ meters apart.

Curvature of the Earth

3000 ft	.21
6000	.85
9000	1.91
12000	3.40
15000	5.32
18000	7.66
21000	10.42
24000	13.62
27000	17.24
30000	21.27

3" gun 10 Tons per sqr inch
4" " 12 " " " pressure

$20 to Rouland for expenses

Capt Charles of Cunard Valeria
said periscope cannot be seen
much more than 1000 yards
Sub can come to surface 3 or 4
miles ahead of ship & then
completely submerge & by
dead reckoning know just when
& where to launch torpedo
without showing her periscope
providing ship doesn't change
her course —

Sachem SP 192
Orlando Rouland
Tarrytown NY

T Ashley Sparks Asst. Cunard
here 24 State St NY

Roxbury wants to make smoke
shell for 1½" gun —

Cargo boat req rudder turns
90° in 1½ min 1070 radius
present rudder 150 sq ft
can stop engine & reverse in
1 min — to bring to stop
3 min 1500 ft 180° turns
3 min —

Have bell on ship to test
Receiver when running —

Ensign Geo L Catlin
(Lockwoods scoop) Room 3735
120 Broadway Telephone 6020 Rector
Wants to aid — Smart
Naval Reserve Mar
(113)

Rec of Moore microfone
82 ohms

At Bliss proving ground
4 large Audion reg bellow
transmitter
400 yards hear torpedo instantly
to launched
1000 yards in 1 sec
2000 " in less than 10 sec

See President 4 p.m. Monday

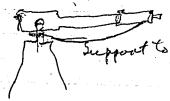
Ask Daniels for 3" gun
Navy or Army worth —

About Baker

Ask Daniels for order to
get 1000 ft Lead Covered
Armored Cable made by
Safety Insulated Wire Co NY
Mfg for Navy now.

Make 2 more short funnels
like Kennedy has —

Fix subm projectile so the
3 vanes for rotation will come
off easily when it strikes
water — doing away with
the skin friction —

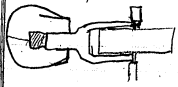


concrete

2" plank

sections - channel — possibly all scantling concrete

Rotating wheel feed time bombs in cells, groomed & rewound by power after launches —



500 lbs Picric in wheel 250 ft/sec
Short Cast iron Matlar, when up to speed Explode shear pins.
French work = probably pay out wire — or Explode by flying wires

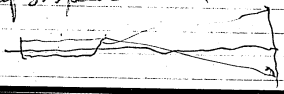
wheel with wire
High velocity - Cut fastening & let wire run out
Tangle up advancing mine

Stream of cumulation reaching 100 or more ft charged high voltage for advancing mine —

Get up a dragging in lead for a couple miles behind mine or obstacle.
Blast it possible. with very close proximity Sunk in = hoz

Collapsible trench wheel all found 3 lbs —

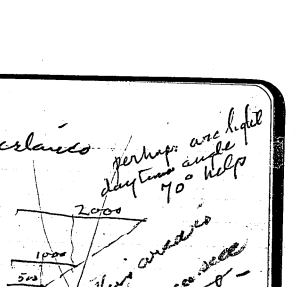
Have Kite rudders given Cunards & glasses & give them angle ahead to look for wake of Torpedo



Periscope Smudge shells -

If wheel will work on water, it could have Contacts which only work on metal on striking Sub it would explode -
Perhaps on water it would want bags to keep from sinking -
Use 2 wheels 20 ft apart with rope to droop periscope -

If a torpedo up to hit & its fired 600 1000 or 2000 ft there is a certain angle from ship that will show wake at any distance



Phones with more than 1 point are not liable to work as one point interferes with the other to increase Volume use 2 phones & funnel & Connect to Receiver in Neutral.

get boat equal to freighter
same displ. tender
etc. make tests, Lieb—
off Jersey Coast,
see what Coasters
Run to Malin Hd
also to Southern
Ports that can
test submarine &
get in touch—get
information Coal
Where my Edison

Try spray to give a mist but
very light to hide Centers &
highest part of boat

Try glass showing two obs
lines periscop

Try photo of skyline with
stake or fake periscope see
if it brings it out plain
or better than eye—

When come to Newfoundland
for Submarine Experts have
Chief Officer Explain by
diagram just how he
would work sub to
fire torpedo to get speed
of ship etc & what he
would do under
Various Conditions

Tell Libby after trying England
25 Lamps. Laugh talkin
instead of Horse

Try same thing with arc & shutter for day signals

Also Red light or otherwise signal by Lithon Lite —

Kennedy — 80 seconds before hear torpedo at 4000 yards —
Cant see wake very far coming toward you but after passes can see of 5 @ 6000 yards —
See mist better after passed, probably see 500 yards before passed

All these results in Calm weather —

2 screws, used both supposed to go same speed —

Kennedy, 2 exp cant tune for the whole, —

4 blades, 1300 per min
21 per sec yet lowest note he hears in 200
& its much higher —
if each blade gives off 17½ second
They use Turbine ~~10000~~ 18000,
Rev — ~~this make give 197,~~
~~but there is a pension,~~
~~Fun out teeth~~

fire Torpedo out with 80 lbs air —

(2)

gyroscope 13000

air cylinder

7/16 thick —

Where gears —

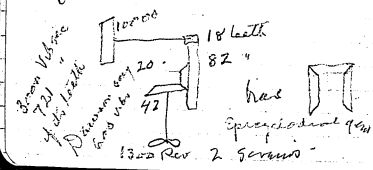
~~3/32~~ — 5/64

has 400 lbs air

pressure — 800 °Fahr

air is heated —

This is the Sphaeroll



Blue torpedo 28 miles hour

2445 ft min 40.66 ft second

gun

830 cm

saw white wake every

Roulcaud with ~~flow~~

Eg saw wake 200 ft approx

after End of Event.

Sky line hazzy

Water glassy except

fine ripples —

no wind —

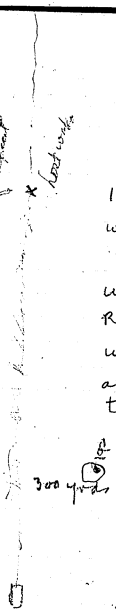
Edison saw the mist above

wake much clearer than wake

but only against hazy sky

line, when against dark

land didnt see it



The wake is
varegated as it thins
100 ft making their
wake does this
right along after
wake is died down in
Rear still see mist
in daubs and all
along. about 250
to 300 ft in rear

The Mist comes in gusts
in spots like blanket & steady

[illegible] Mist

wake

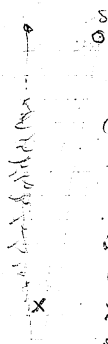
Wake lost at mile

Sea couldnt be more
favorable for observing
wake

The Mist is seen against
the wake, think
we are 400 yards

No 2 Torpedo

Saw wake 200 to 300 ft from boat



Mist very strong when light strikes it thus Cant see at X on account of light strong & haze

Most torpedo went up 10 ft or more

Most always in sight 100 to 150 ft behind wake.

See wake to Kennedy's boat 3000 or 4000 yds from K. then wake gets into haze

Try Experiment of some Sublimin mixt in water that floats like oil that our from torpedo will blow bubbles

Could shoot it out

Try day time arc light
beam on mist.

3rd Shot -
Sub Boat go out -
Torpedo passed under
boat 3 seconds
after torpedo passed
bubbles came up
This at 40 ft sea
is ~~[illegible]~~ 120 feet,

Did not notice so much
mist this time
where land is cutting
off sky line haze could

see it easily 1 to 2 ft
above wake then could
have been seen 20 yd if
wake were invisible
Wake is very visible -
Can see it before
bubbles appear or break
~~[illegible]~~
Especially on torpedoes
upward bounce
Think arc light
beam would
make it easier visible
both wake & mist

Boat in wake deep
bubbles are 8 @ 12
inch snakes dia
before breaking
The mist is a snake
not a water mist,
Can smell it,
like smell of gas
engine —
Wake at first 1 ft
widens out to 10 ft
behind

Last torpedo fired saw it
go in water but never
saw it afterwards sun
wrong — Wake ~~[illegible]~~ saw
it quite, water not glassy
where torpedo went,
about 3 pm — only fired
6 torpedoes today none
was accepted they kill me —
My impression is that
in glassy sea Convoy boat
can see wake & especially
at sun in night 1500 yards
but may make it seen
will see nothing until
its right near ship —
+ no dependence can be
placed on it —

Kennedy Chester head
SB 192 Boiler pump
at 2500 yards —

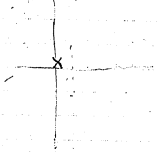
C91

Chester in bathing suit
dived 5 ft under water &
heard torpedo 1000
yards away with ear
only — says heard only
one thin note, above
500 vibs sec.

Have small launch
draw oil bag over
course of torpedo
see if one better
find an oil etc
which will flow
bubbles, or cause
big air bubbles to
carry up in air
Weed etc to reflect
light —

Try cylinder oil
& crude oil from
Pliso — also
try bag from 192
Brow to see if keeps
bow wave from
breaking

for oil spreader use
Feds wheel with sal a
hole in it,



When a gets to
X or nearly there
shoot another

good, south sal ahead
streak two ft wide
200 miles each side
boat,

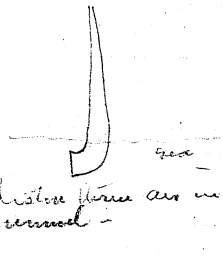
Most practical device for seeing
periscope on the sky line 2 ft
from the water is cut a hole
Mud ships put in a glass on
each side boat with a canal
from rail – using a good
telescope + get rid of the
d–d periscope –
see how close to water is
a glass holes in 192

+ If one could be cut
easily in Rampart –
have 1" - 6" from sea 12" 18" 24"
amidship -

When we run old Whitehead
get speed 36 miles hour
if it will stand it –
ask how many times it
will stand it at 36 +
at normal

Fred Ott fit an ear piece to my Horn & let Chevalier go under water & hear with Ear direct - get air out under water before puts in Ear, listen after torpedo passed 1 mm 2 mm & so on

Add a bend to a horn



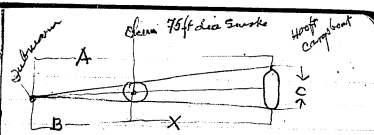
Listen three ears in general -

Naiv Draughtsman lay out width & make to cover ~~Vision~~ Vision line at 1 2 3 & 4 miles on 400 ft boat & on submarine -

Bore 1" hole 2 ft above water line Each side 1 qr tap & put screw in with Rubber washer to be used as a sight line for the Eye - no glass -

Warn Merchant ships about boiler pumps find out how to soften them or use mysticor

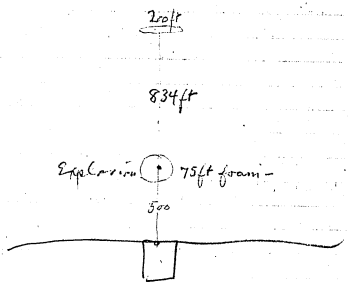
Req a double pole with Rope holder to raise up quick for Flash off the Cargo ship when sight Submarine -
This will give advantage to Cargo boat for hitting = perhaps the fire holder would do - on a ~~[illegible]~~ Captive Ballon 15X20 have it figured



Dia - 75ft Oleum Cloud -

A	B	X
1000 yrds	187 yards	813 yards
2000 "	375 "	1625 "
3000 "	562 "	2438 "
4000 "	750 "	3250 "
5000 "	937 "	4063 "
6000 "	1125 "	4875 "

Distance to Sub M	Distance to fire bomb
1000 yrds	813 yards
2000 "	1625 "
3000 "	2438 "
4000 "	3250 "
5000 "	4063 "
6000 "	4875 "



Launch $23\frac{1}{2}$ ft -
without rudder turned
90 deg in 18 ft with kite
with kite & rudder 11 ft.
With plain rudder only 46 ft.

Objects seen at sea
above eye of observer

	Nautical miles
5 ft	2.5
10	3.6
15	4.4
20	5.1
25	5.7
30	6.2
35	6.7
40	7.2
45	7.7
50	8.1
55	8.5
60	8.8
65	9.2
70	9.6
75	9.9
80	10.2

Nautical 6080 ft

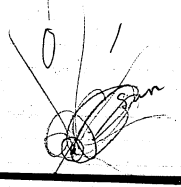
10 20 am

Weather Warm ft
bright - Heavily
avg cumulus clouds
Wind 10 @ 15
makes hum

Can see
Smoke for
2500 to
2500 yards
Wake 1500
Yards

Boat
0.5 mm

used big
trip opened
down telescope
Can see smoke
as well with
eye - see wake
slightly better
with telescope
Very little
advantage



Yokohama torpedo leaves
an oil streak. very
smooth Even 20 min after
torpedo opens it was far
as Eye can reach -
the streak is parallel
with the wind

3rd torpedo 10-45 am
see wake 2 min 30 sec 1500 yds
see smoke ahead 4 min
4000 yds - Very hazy on
Skyline is reason cant
reach far - am in pilot
house,

#3

Torpedo started 10 35½
oil streak shows in spots
at 10.50 am - & keeps about
same - at 11.23 its plain
but bent beyond
Hazy sky line, cant see
blue sky beyond a great
height like very high
mountains in the distance

Made a little boat four foot
wide 18" long, with wooden
post mast about 1 ft high
10 @ 12" wide of cheese
cloth set it afloat
it sailed OK - think
smoke pot will be
OK with sails —
think sail should be
low & wide so
demand tendency to
tip

#4 Torpedo gives lots
smoke, with opera glass
could see head - 600 ft
long for 6½ min 6500 yds
Very Conspicuous
due to smoke given
off - No one could
miss it for 3 or 4 min
within 500 ft of
firing boat, Hazy
sky line very little
wind scarcely a ripple
Cap - oil wake very plain
(+ straight)
think flares should
stop smoke - impossible
observed in pilot House

It is evident that things in a torpedo vary much. Some gives lots smoke + oil wake + others very little smoke + oil wake. #3 was poor smoke + oil wake whereas 1120 torpedo had big smoke + oil trail —

5th torpedo fire 1147. saw head of wake big jumps of smoke. for 3 min ~~[illegible]~~ 17 seconds or 3283 yards the ~~[illegible]~~ could feel to see it could not see wake very faint, but smoke is very faint — used opera glass + in pilot house

Hugy

5th Shot

oil wake not so good smoke not so strong #4 — best good

Think we see only smoke of bubbles come in bottom due to torpedo jumping & the probably 300 @ 500 ft behind torpedo

wind

wind 5 @ 8 miles

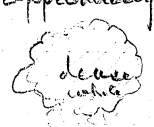
Boat

Note humidity makes it easy to see it —

Smoke Bomb -
Exploded 1 oclock 14 min
15 sec

Looked at it at 1 oclock
16 min 10 sec

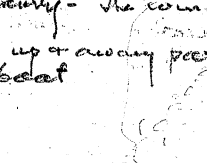
Very beautiful Cumulous
Cloud very white
apparently 75 ft clear



Trailing thin

looking weather hamboy
40 feet higher than sea
but thin smoke trailing down
to sea - As it receeded
from boat got higher

apparently - The wind
blew it up & away peacefully
with boat



was 2000 ft away at
1 oclock 18 minutes
& 200 ft up & thinning
but still a great
white across land up another
bay. Commenced settle
down 3 to 4000 ft away
at 1 oclock 19 min
20 sec went clear over
land and over

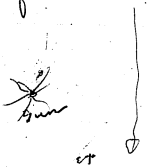
Water started settling down at 1 o'clock
20 min 3 sec

Pilot house floor is 13½ft above the water line with myself 5'9"½
19ft —

6th fired 2 o'clock 7 min
10 sec

2166 yds No smoke scarcely any wake but very conspicuous
Oil trail in place —
Ditto 2500 yds
" 3000 "
" 3300 "
Not easy to see Head at 3833 yards
Need 10 inches for robots

Caps about same angle of boat



Used Opera glasses

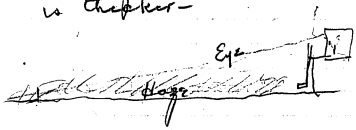
Rear Anchor ropes of Emdaw
Cannot see Beam against the Sea from our boat.
500 yards away boat
Very plain against
Oily line by Eye on deck

[51]

but not in pilot house
where ropes seen against
sea,

Can see part of Hull of
Rampart thru periscope
no mast, in pilot house
Can see all the hull &
mast family with Eye
a clear in Opera glass

Periscope is poor 1st
on account of ~~glass~~ Mirror
2nd dirty Mirror &
3rd Haze over water
is thicker -



for 1000 or 1500 yards
when haze not Very
bad periscope will
probably be Good -
but Man at Hole,
2 or 3 ft from water
line probably better
think holes 3 ft above
water best for Cargo
boats —

2nd Bomb:
Exploded at Water Edge
in a pail, Capt put 3
Cans oil & some water
this Killed it, some water
1/10 of first bomb but
hurtled water -
~~[illegible]~~

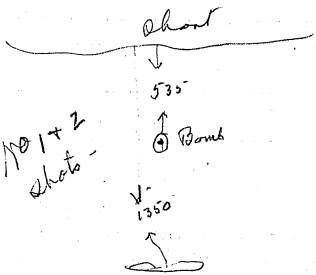
hugging close to water
went over land which is
low sand 5 ft above
water at shore —
1/2 of the smoke hugged
low land 1/2 several ft
above — got thru in
40 seconds about
Very poor that as SO_2
went into air + water —

Every cargo ship
should have 15 or
20 common
Opera glasses

Periscope 4' up being towed
by 1929 launch to the Rampant
4 pm 15 mile or more wind
Crest to depression about
1 ft, some waves 2 ft.
waves ripples Every way
Sun shines + reflects back
bothering but can see
in Hole 3000 yrds
but the periscope then
rapidly gets too low
450 pm — same angle
as torpedoes —
Hole is much better
+ is the thing to use
about 30 inches above
louder here OK
say midships + bow at bend (ss)

using Opera glasses

Opera glasses should have a focus index - so many can move between 2 points fixed or various points in middle. Think 1000 yds to 3,000 is limit.



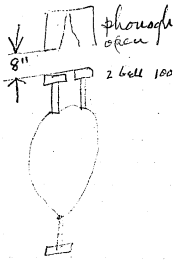
No 1 + 2 shots -

at 4000 yards lowest speed observed of new from forming boat to 4000 boat is 27 knots & a fraction 29 @ 30 but 29 is average

Doubt have many at 29 - or many at 30

Contract calls for 27 knots over 12500 yards - variation of 2 knots allowance

Can't vary more than 2 knots between 4000, + + 12500

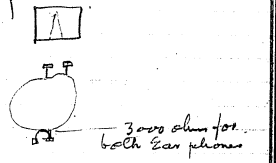


	Current	Energy
1 Bell.	1	1
2	1.33	1.77
3	1.50	2.25
4	1.60	2.56
5	1.67	2.77
6	1.71	2.94

If with 6 Bells the receiver was instead of 100 ohms was made 600 ohms & properly wound & devised would get 6 times the Energy – This is true of Multiple arc or also of Microphones are used –

It is preferable to use Microphones in Multiple arc as if one gets out it will do no harm if battery has exceedingly low resistance.

Counting record



2 Bell receivers in front Cabin in front phonograph equidistant – Listening phones in Stern Cabin – duration boxed –

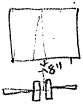
	Single	2 in Series 1 way	2 Series Reversed
Lobenstein	34	28	30
Hanley	38	28	34
Chesley	28	24	26
Gitt	28	24	22
Moore	32	30	28
average	32	26.5	28

Tested the phone that has been previously short circuited used it only

Loebowitz 26
Henley 32
Chesler 30 — got a radio on board asked men stop rocking the
Ott 26
Moore 30

28.8 average

We now placed phones thus to be sure that the waves balanced simultaneously

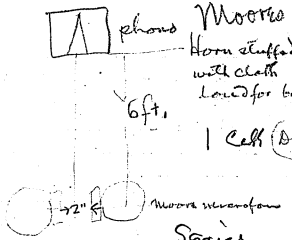


Then

	Single	Double	Difference
Henley	38	60	22
Ott	28	36	8
Loebowitz	32	58	26
Moore	34	58	24
Chesler	30	48	18
	32.4	52.	

Loebowitz got lost on one & then had the other cut in it was some planes, but disappointing Chesler confirms this —

Loebowitz put shunt a little less than limit with 2 phones in. When 1 phone put in he lost it, showing gain planes —



Moore Micro

Horn stuffed - with cloth too Loud for horn

1 Cell (Dry)

Series –

	Single	Double	Difference
Ott	22	20	2
Moore	34	32	2
Lozbowitz	26	24	2
Chessler	32	26	6
	28.5	25.5	

Multiple Arc

	Multiple
Ott	22
Moore	32
Lozbowitz	28
Chessler	30
	28

Seems no gain Either way

Another Test

	No 1 Single	No 2 Single
Ott	18	26
Moore	34	32
Lozbowitz	24	28
Chessler	30	32
	26.5	29.5

28 – average

Ear Sensitiveness	Miles of Cable
Hanley	38.33
Chessler	30.50
Ott	22.70
Moore	34.10
Lobwitz	31.63

[ITEM(S) FOUND IN BOOK]

0 10 20 30 40 50 60 70 80 90 100

No 2 Moore micro which averaged single # 2 29.5 Miles Cable on box. Is now loaded with a one stage audion with an inactive B audion Lamp —

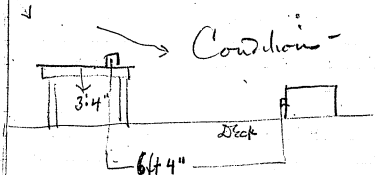
	audion
Chessler	60
Lockwood	56
Moore	60
	58.7

Had Reg ⌓ W Elec for input
⌓ Sonnet W Elec for output
2 1500 ohm head receivers +
the 2 measuring boxes —

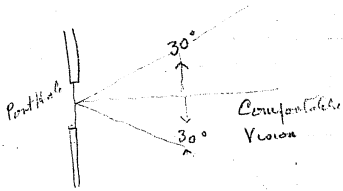
We now put in same size coil as 105 have on input ⌓
Much louder at 60,
Very much.

We now put Phonograph in the Closed box with small hole in box —

	with audion	Without audion
Chessler	36	Nothing
Lockwood	32	
Moore.	40.	



funnel stuffed with cloth,



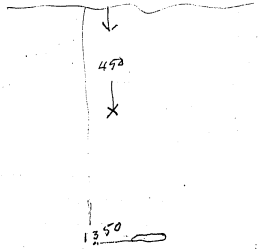
Port Hole in 1925P 10½" closed + 12" open.

Maximum angle of Vision is 40° to 50° on each side but uncomfortable.

Quite some light is lost thru the glass pellicule well cleaned

Ports should be larger say 12 @ 14 closed if this is practicable

No 3 bomb-



Wind Miles/hour	feet/min	feet/sec
10	880	14.6
15	1320	22
20	1760	29.3
25	2200	36.6
30	2640	43.8

Aug 29th 3 pm 1917

4th Bomb Wind 22 miles hour (land)
Waves 2 @ 3 ft pond out
Exploded
258 pm –
Immediately 86 ft wide 20 ft high
lengthens rapidly in direction
of the wind. 2.59 pm lengthened
out 800 to 1000 ft long –
hugs the water line & puts off
sky line, at 3 pm same length
thins out above water line but
Cant see land. Now it Except 10 @
15 ft above where the thinning
out, land looks very Hazy
3 o'clock 30 seconds 1500 ft
long & too thin but very
hazy near water line – 1000 ft
long 3 o'clock 1 min 30 sec
passed over land now on
haze & thin

Cam Vertical, bottom on level
of water 1000 cc 60% glass
½ lb 20% Dynamite

White Caps = Waves 2½ ft
maximum top to bottom –

Torpedo runs 50 ft second
1000 yards per minute

1st Try 5 ft under water
then maximum depth.

2: Moore closes off pressure
regulator, put up 10 ft
tubes no diaphram free

3 = Put 1+2 Moore ~~series~~
Multiplex arc on cradle
use two 90 ohm' resistance
10 ft or regular depth

4 put 2 magnets facing
each other & connected
together series, leads 2 gas
& 3 [illegible]

5 = Req above in water
water both sides dia
but magnets thoroughly
insulated -- 1/32 hole
let water in inside
part of dolphin -

1st Smoke bomb today
Effective for 4 minutes &
then would cover
a ship at 2 miles
wind about 15
miles hour

bomb
↕ boat

Can see smoke 10 mins
after wind was off -

We now will fire

- - - - - - - - - -

↕ boat.

so as to observe if
Sidewise after 2 or 3
minutes ~~of~~ Exp Cover

Try Thick solution of soap
so it will form microscopic
soap bubbles - ditto
Colored with phenolphthalein or
aniline black - sulphur melted & cast
Try anhydrous glycerine -
graphite. Solid Chloride Calcium
Camphor, solid Chloride
of Ammonia, Solid black glass
Solid Sodium - Solid Anthracite
Solid Turpeth Seafeather
[71]

Boat cleared 2000 yards somewhere 3rd year

Bal 0 - 1050 yds

Exploded 1.41.10 sec
in 1 minute 500 ft long
2 " 1000 ft "
4 - too thin, Wind 20 knots
2 min 30 sec only
Thick haze 1500 ft long
on 13 min head gone
a-mq -

The Explosion was too much something wrong

at 6 min still see haze in distance,
7 mins still visible -

This is different from the bomb previously recorded as it did not reach ship for some time & was partially spread out by the wind & thus made it thin - the haze however would make it hard to see ship at 1 minute if it could be seen at all -

Effectiveness increases enormously by decrease in speed of the wind - The number of bombs exploded is directly in proportion to speed of wind when approach to that of ship & few if it equals ship in same direction

400 ft Cargo boat

In turning any ship when on course | 100% change.
If turned to 90° in 1068 ft from Bow,
100%
97½%
77½%
47½%
13½% – 90° width 54 ft

In other words the width of the ship as a target, is
400 ft
290
310
189
54 ft when 90°

Have it all hand out now

The bombs we use is a can with front fuse cap all made of metal – several Vials 1" dia of Glycerin put in then ½ lb of chlorate 20% Dynamite then sand wet put in & packed accordingly – There is very good Confidence for this big of Chlorate –

Materials for bombs

Cryolite, melted & powered
Sulphur black, powered
Monoferrous sulphide
Melted & powered
(wet of Sulphur Melted & powered.
Water powered —
Fused NaOH, Fused Carb Soda, Fused Zinc Chloride
Fused Fused Antimony Chloride, Bitter Antimony
Dichromate by H2O in air to
White crystals Chrome
Fused Ferrous otro Ferric Chloride,
Fused Naphthalene,
Melted paraffine —

Experiments for Rampart

1 = Put magneto down by a stick only 6 ft below level & boat for torpedo using audion

2 ditto 3 ft.

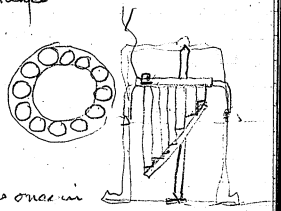
3 If ok at 6 ft fasten the stick to boat run boat 6 miles hour + listen for torpedo use audion note noise going + stopped —

4 if ok do same thing with Moors recorder keep within 400 or 500 yards of 4000 yard stake

5 = put Microfone down
6 ft with tubes up to
air not using bodanaco
4 Grey Bell — | dettes
Mosquito —

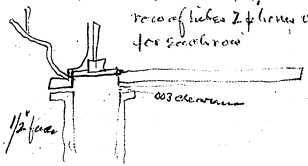
9 found out nearest
place where Rumpzail
Cauter dong docked

Revolving Resonator Tubes
003 clearance



Revolves once in
4 sec

27" dia — 44 Tubes, giving $\frac{1}{4}$"
between each tube, dia tubes 2"
Phone fixed in fixed ring. Tubes
above revolve on Cauters, Double
row of tubes 2 phones one
for each row



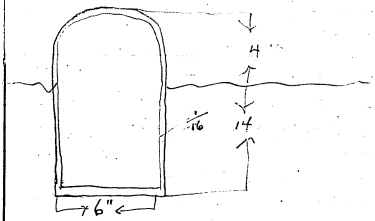
Bore of Lyle gun on 192 – 2½"

White Smoke used in Movies

Flour 22 oz
Powdered Charcoal 22 oz
Wet Nitrate Soda – 6 oz
Dry Nitrate 2½ to 4 oz –
Standard oil Red Engine oil "Calol" 36 fluid oz
Water 8 oz
mix flour & charcoal & some dry Nitrate, add oil then add water to which add balance of Nitrate Na
Bake in slow oven 4 or 5 hours
Choke draught,

Costs 5½ c lbs wholesale Lyle & Co

Lyle gun projectile weighs 18 lbs



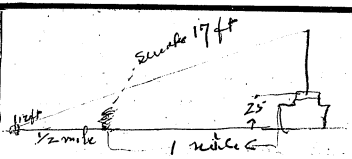
Buoyance	14.2 lbs
Bomb	1.06
Ocum etc	2.5 lbs
TNT	1.0 "
Counterweight	3.0
Bare	.531
Walls 1/16 thick	6.35
	14.441

(8)

Investigate why pumps on steam vessels gives so much noise get rate + fixed, probably Condensing water should discharge in the air above water line or it may be tight packing somewhere

Using the sun a heliostat + Revolving mirror throw sun in eyes of submarine gunnery –

Have 60 ft mast when a fight is on with Spotter at top, then throw smoke Cover by Lyle or bombs by Country. Then submarine Cant see ship but Spotter Can see submarine



Sub Cant see Vessel if mast is down, yet gunners can easily hit sub. if mast up –

When smoke is 15 ft high Cargo boat 1 mile from smoke + tales 1/4 mile from submarine, ship cant be seen –

near Scillys + 100 miles out stopped. Chaser boats should be able to detect sub running on top or charging at 4 miles –

With Lyle's gun & no naval guns
the Goat should have
Dummy Naval guns & have
Lyle wear them & fire to
make believe guns are OK

The port hole men sighting
for Submarines should have
Electric button to give
signal of sighting on
periscope & be provided
with a 300 yard smoke
rocket sight the periscope
& fire to give everybody
on board exact direction
Knowing spot is 50% of
the game & there will be
no confusion

Put a Sail on one of
the false Steamer smokes

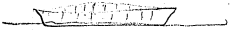
On Cargo boats a very small
bell should be placed at
Stern that can be rung by
listener mounted by
test has Microfone &
2 or 3 microfones used
so can switch in or out
any one -

It is likely a Submarine
sends out the Commutator
waves to the sea or gets strongly
but receiver can't hear as
slowness of Magneto &
Induction Coil & Receiver
think Microfone is best
for them & probably
Chalk telefone would bring
them out loud as it has no
self induction possibly
Audeon would have to
be replaced by Revolving Resonator
possibly audeon will work well and care

Think by painting boat
white or nearly so, when
burning Moore smoke one end
or other according to wind
+ 2 or more I above the other
can make a hazy trail
will cover the boat &
resemble sky line —
steam naught work —
possibly blow in a white smoke with it

Funny Burns being down
my sweet Dream [illegible]

If white smoke is used to
make sky line, only would be
length of steamer hence,
if smoke should spread & die
or thin out in 30 yds
+ a member was along
boat steam would be in
a cloud —



½ inches, white holes in their
steam used, 16 on a side —
Everything settles off white —
both sides thus make 25 ft
apart, usual sample steam
pipe in Locomotive boiler
Authority of Brown

Raining — I just realize
2 miles away a steamer
dark top & bottom with
white streak whole length
the rain makes white
streak perfectly blend into
sky line — I thought at
first she had a top deck —
I saw sky line through
This was on sky line — when
got to land then can see its
white streak

Eventually the smoke haze against a white ship can be very little — unless skyline, or a very gentle rain. Drops about 6" apart are shown when shock waves —

Perhaps water drops will be necessary & smoke (white) will not absorb light right or scatter it properly

Canvas then center, where skyline causes seen may have to be used in the wind as might angles to ship Odenso, the Canvas guardrail at side used —

possibly white smoke could be blown from the 16 pipes with holes by a blower & only have one or 2 ounces of smoke on board

Try Experiments with steam & a solid substance & which melts at temp steam probably Naphthalene to form a steam on water globules possibly oil will do it blowing steam then oil —

Wrote Dally

Blow air or steam thru
hot saturated solution
of soap to make a
distance fog

Fred Ott is making the
Revolving Mirror of over
6 mirrors, rotation
250 min | has given
25 per second to
Submarine means Eye
which on account of
persistence of vision
should blind him.

Fast sailing yachts, inside
short lines of 50 fathoms
Sailing at night. Black sails
everything black - Microphone
detector for catching
Sub chap on top.
When near, have guns
ready throw up an
20 sec flare and fire.
Yacht will make no noise
Yacht to have sharp
bow -
The flare is to be shot
in direction of sub
so they cant see no
perhaps several flares
of local action -
It will be 2 minutes
to submerge, can fire
4" gun in 10 seconds
Could get in 24 shots

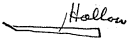
Suggest to ~~Comp~~ Passengers Boat men
they have a rope ladder at
davits fastened to boat ship
50 ft long

At New London see how far
Can hear a sub on top
Changing Our boat stopped
+ also running -

Sailing Yacht.
Noises + Creak of spars, jaws
against mast, Creak of blocks
Shriek of the low waves
gurgle about the stern +
rudder, pound of the ~~waves~~
bows + Breaking of waves
when sea is choppy or
rough also noise due to
Coming about or Tacking

Have 15 ft kite rudders all
along side of ship at low
angle to run out 50 ft,
all thrown overboard when
torpedo heard,

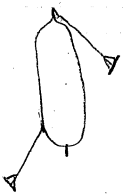
Explode +



Hollow 9"

Operator eye pressure when
closed to ~~avoid~~ prevent
light getting in Eye
Condense moisture from
the Eye — 3 layers
of glass Evaporator I
or cloth one rub dry
if closed 3 moonsails <
turn 30 sec to about right

If there is doubt about strength of Bow to take large Kite one can by throwing from the Stern on opposite side



Rolling of 192 Complete Cycle ~~14~~ seconds

Kite + Rudder full speed of 7/13 Made complete Circle 2 min 30 sec not dropped out in water Then slowed up - 90° in 37 1/2 5/8

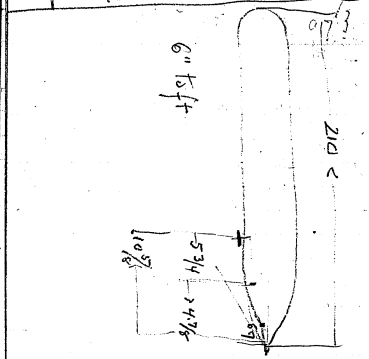
Changed angle Kite runs out further made complete Circle 2 min 10 seconds

Make 2 Revolving Resonators - & a little oil.

1st 1 6" start, 2nd to go down & small one for higher 6" to 2"

Logbook Sandy Hook Light Vessel
365 days Ending Nov 30 1920

Sea Smooth	121 days	30.4%
Moderately Smooth	196 "	53.6%
Rough	47 "	13%
Very Rough	1 "	.3%



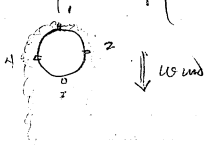
Claude Stanley McDowell
Lt Commander USN
Tel 1270 - N Lowry
Sub Salem -

Naval Reserve Base
Capt W A Edgar
Stale Pier -

Think there is a bug in regulator
Bell telephone receiver
Think outside is closed in on
magnet side, whereas it seems
to be rather open allowing
sensitiveness is greatly lessened

With resonator think big
tube Cone used for
Stetoscope & this will
prevent Crossing

Invisible periscope -



1/4" pipe holes, blow off steam
with soap-water 1 2 3 or
4 according to wind

New Resonators
gives for 1st 60 high 3264 Vib Sec
" " low 1234 "

gives for 2nd high 1230
low - 575
3rd high 570
Low - 185 -

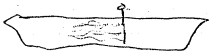
For Taking out H from
Submarine Use pump from
battery depot - through
Lead Coated plumbago
Lines - Continuously -

Depth of Cycle Gun
20 1/2"

Camouflage

3 white 1 black - latter 6" @ 8" wide -

2 miles very white as whole on sky line, 3 miles @ 4 at times, black stripe just removed by 6 p.m. Whole dark except front top edge which was white. Whole boat appeared not white but darkish or dirt color, at finishing front 2 or 4 miles could separate black from white no blend



Standing still - only 10 ft Running 10 knots

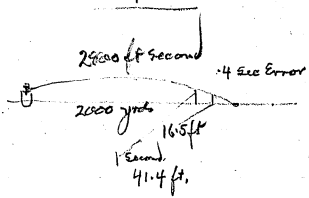
Evaporates top soon
wants oil or soap

Req amount in bulk of Rosin a 1/2 lb 20%
(5 lbs Rosin) - Smoke
NG - small in amount & disappeared in 25 seconds - Wind 10 miles or less off New London

2nd bomb with Concentrated liquid soap saturated at normal temp - Made hot sol and at it cooled added cooler to keep soap in solution -

Amount of Soap Sol
Equals bulk of Clean
off other shells 1/2 lb
20% - absolutely NG
3 ft high 15 ft long &
gone in 5 seconds Rollen

Try Chloride Sulphur + Carb Ammonia separate 6 rattles, free S or Ably Cl



Shell shoots a beam downward anyway, if arranged like an Interrupted shell & fuse head blocks out forest,

The time fuse can have an Error of 1 second although Bowen says shells have an Error of only ·04

Things to feed into steam for Camouflage

Soap water (Conc) also once with glycerine
Cylinder oil
Machine oil or Engine oil
Melted Naphthalene.
✓ Camphor Methol,
✓ Kerosene,
✓ Benzine (Pet)

For surrounding periscope glasses + objectives in Conning Tower, use a Hydrofluoric Compound + Explosive shell.

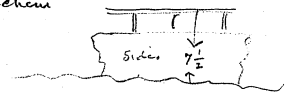
20.36
19.86
19.33
18.79
18.27
17.68
17.08
16.45
15.77
15.08
14.31
13.48
11.56
11.52
10.27
10.27
10.14
10.09
9.84
9.69
9.54
9.39
9.22
9.04
8.36
(103)

According to Bureau Ord Times fuses vary 18.69%

Prussian Specifications for time fuses
Mean time of burning shall not exceed 0.13 second

fuse cord 1 ft. 30 seconds -
2½ seconds to 1 inch -

Sachem



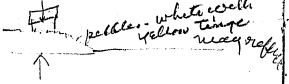
Cargo Boat Skin Fas at 11 Knots
42.3% of whole

Resistance of 4 - Kite Canvases
4X4 - Towing - about
156 lbs pull | 5.3 HP

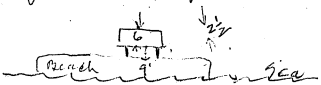
I notice considerable
twenty whale snakes
from Dubrovnik running
on top = with only little
waves went up generally
8@10 ft but when high
20 ft or more

No 1 Tint of part of 192 painted
White lead & lampblack –

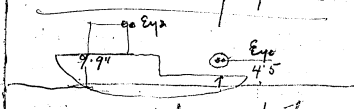
No 2 still lighter shades of #1



Bottom of boards about
feet above water line,
pebble beach 1 ft ~~[illegible]~~ lap
of 6 inch to lower part
of boards 1 ft —



Skyline not blue but cloudy
white, – blue away up.



Polyanna beds

between flickering badly &
all gones of 4 white
boards boat run 1/2
mile –

Abandoned Fort near
N London good chance
for practice shot long
distance –

~~Also 2nd~~ 1st shot abandoned
for didnt work right 1/4 lb
~~Hyde powder~~ 1000 cc
Oleum — 3" tube reinforced
at powder chamber —
after explosion nitrol —
poor, Oleum Can not well
burst —

2nd Shot — photographed
1/2 lb Ky Sporting
rifle powder —
Very good light on
the water — projectile
17 ft above water
OK along sky line —
1 min Fair 2 min
powder burnt
up but Oleum

Smoke settled out
This shows worst time
fuse 1/4 sec is ok & good
Shell all went pieces
End 3/4 blew out didnt
strip threads —
Oleum End closed

by 4 screws overlapping
End of Oleum Can
1/8 inch to tear it —
5,30 —
Scarcely any wind
Photos take side wise
which is worst Condition

I made away. bright flash
from a window, kept in Eye
while our 6 at moored
100 ft 1 sun 1/2 hour
above horizon

No 2 is painted out +
painted white for
tomorrow — No 1
still same but as
white part of 192
Sun down behind
horizon - it is almost
invisible where 192
lay anchored - 4 white
are very white
Red yellow not so

Visible as white about 1/2

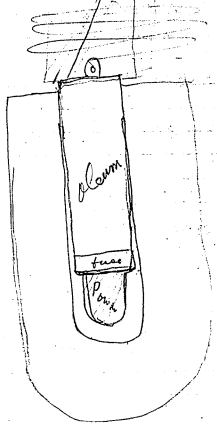
Nearly dark see only the
4 white

No 1 seems good on sunlight
side from Bipin till dark
+ probably when sun has
just passed Vertical line -

Red + yellow fades out
surprisingly quick
as light leaves
white is worst color
possible -

This morning 6 am with boards
in shadow they are all practically
black - But the Red yellow No 6
is yet black. at 7 am can see
No 6 as red - No 1 black
2 3 4 + 5 dark but lighter shade

920 AM - #6 quite red No 1
quite dark 2 3 4 shady
slight violet



11 AM - #1 darkish 2 + 3
dirty white, 3 dark violet
4 still darker, 5 dark red
6 lighter red - all from
192 Several hundred ft
away - no sun direct
on boards all getting
light from general
deflection. This is easy
see big font

X X parallel with
boards & in shadow
but get reflected
light -

11 50 AM - All boards
out of shadow - Light violet
No 3

12.20. pm No 4 deepest
Violet is best for measurable
& No 1 next,
Thenmore the sun approaches
right angles. the deeper
the shade
at 1.50. when boards
Came out of shadow
Lightest Violet was least
Visible, & & no 1 was
rather dark - in 25 minutes
all had changed. deepest
Violet # 4 best & No 1
2nd best.

Make hydro projectile, with
space for Sodium to make
gas when water gets in
so it floats —

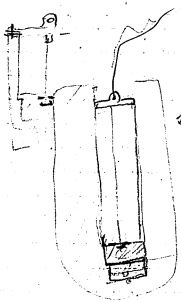
Balloon float with wind
take 2 lbs alum &
1/2 lb powder with string
fuse using wind —

Lyle gun Coast Life Saving
Same size as on Dreadnaught —
15 lb projectile # 7 flax line —
Elevated angle 14 deg reaches 200
yards, with more elevation 300
yds. at 15 deg 8 oz in ordinary
wind on level 600 yards can
be reached with line dropping
with water before projectile
has reached limit —
Brown think would go without
line under favorable Condition 700 @ 800

Charges equivalent to 1/2 oz of Sodium

~~Correct this~~

The air in contact with the sea is in our favor to the extent of 6.25 ft. If there were not for the effect from the air today the boards would have disappeared in 8.67 miles whereas they disappeared in 6.02 miles. This is equal to the range ships up to the rail and deckhouse above is correct as Polyana makes 7.73 minutes made



Small life line
Wishes lanyards
Hung from adjusted
so when it comes to
end of line should
be tied it pulls the
free opposite of a
parachute jump
charge

Polyana goes 1 mile in 7.73 minutes at full speed

8 20 am all the 5 white boards back light black
No 1 blocker - haze is very strong where sun rays strike on haze against hand
It's a fine morning clear, few fleecy clouds yet haze bad
It will be difficult in morning to see ships as far as later on the day on account of the morning haze - Later, some day scarcely any haze
So hazy that at 9 am the lighthouse we called at can just be made out.
think this usual in morning

12 noon, smoke got going strong —
Tar is used sometimes
Something chokes them
Comes ok again —

First smoke decay 3 ft dia
12" chimney off Abandoned
fort, 1/3rd of one can full of
Coal tar — started 10 am
Sun shining on it makes
dark Greyish white, but
high up in sky looks dark
Enough — but very faint —
wind very light Handkerchief
stands straight up 50

Stack should be 24"
+ body probably 4 ft
should have at least
4 or 5 times as much
smoke to be right for

a stiff wind, smoke goes
up so it can be seen 1/2
mile away 2 1/4 times height
of Mast on Jackson —
Say 150 ft, 3 times
for several reasons
Something got choked
or it gave very little
smoke but came ok
again — probably choked
from lamp black —

The bottom rod going
down 10 ft also is
entirely too lightly
braced, it wants to
be a dozen times more
strongly braced
It burnt out a little
after 12 o'clock
If jars had been filled
would have lasted
12 hours —

(11)

No 3 test

Today test, Clear day
not much wind, sea rolled
Polyanna some, Very hazy
Compared to No 1 + 2
Sun not clouded.

No 1 Board. Sachem tint
we painted on

Then	# 2	90% black	10 white	
	3	80 "	20 "	
	4	70	30 "	
	5	60	40 "	
	6	50	50 "	

No 5 was about same tint
as test on No 1

Sitting down 4'8"

No 2 disappeared by Eye in 1.28 miles by glass in 1.62 miles, gravel & dark Unable probably more than 8/10ths of it
Standing 16 ft above sea

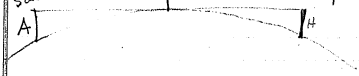
No 2 by Eye went in 1.85 miles
No 3 " + glass 2.93
No 4 3.44
Then good result due to haze + proper tint.

No 1 quite visible when No 4 went out.

Vertical Strips 50 50 about one inch wide, each
get measurements from Rowland -

New lot of Movie smoke powder sent up by Dabby
15 lbs in iron pipe — Expmt 25

Woodflour	3½	grams
Natral Soda	22	"
Sulphur	3	"
Charcoal	3	"
Rosin	6	"
Tar	14	"



Height H above Water

miles	A 8 ft	A 15 ft	A 22 ft			A 8 height	A 15	A 22
1	4.711	6.00	7.001		31	10 38	11 64	12 64
2	5 22	6 51	7.51		32	10 45	11 75	12 75
3	5 62	6.91	7.91		33	10 56	11 86	12.86
4	5.94	7.23	8.23		34	10 67	11 97	12.97
5	6 24	7.53	8.53		35	10 77	12.07	13.07
6	6.5	7.79	8.79		36	10 87	12.17	13.17
7	6.74	8.03	9.03					
8	6.96	8.25	9 25					
9	7.18	8.47	9 47					
10	7 38	8.67	9 67					
11	7 57	8.86	9 86	Hull				
12	7 75	9.04	10.04					
13	7 93	9 22	10.22					
14	8 10	9 39	10.39					
15	8.25	9 54	10.54					
16	8.40	9 69	10.69					
17	8 55	9 84	10.84					
18	8 70	9 99	10.99					
19	8 850	10.14	11 14					
20	8.98	10.27	11.27					
21	9 00	10 30	11 30					
22	913	10 43	11 43					
23	926	10 56	11 56					
24	939	10 69	11 69					
25	952	10 82	11 82					
26	964	10 94	11 94					
27	976	11 06	12.06					
28	988	11 18	12.18					
29	10	11 30	12.30					
30	1013	11 43	12 43					
	1023	11 53	12.53					

Lampblack with about 1/10 of Linseed + 9/10th. of Turpentine
Paint is quite thin, and all amount of dryer — Cobalt Dryer

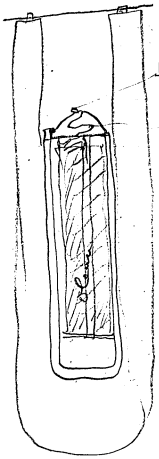
Pure white lead Paint as we buy — thin it out with Turpentine — and dryer —

Beaufort's weather Scale

B Clear blue sky
C Clouds
D Drizzling or light rain
F Foggy
G gloomy dark stormy looking
H Hail
L Lightning
M. Misty weather
O overcast
P passing showers
Q Squally weather

H Hazy weather

Smoky haze
Indian Summer haze
Clear sky line
Hazy
Very Hazy



	Statute Miles Hour	Pressure lbs/sq ft
Calm	0 to 3	0.03
Light air	8	0.23
Light breeze	11.3	0.62
Gentle Breeze	18	1.2
Moderate Breeze	20	1.9
Fresh "	28	2.9
Strong "	34	4.2
Moderate gale	40	5.9
Fresh gale	48	8.4
Strong gale	56	11.5
Whole gale	65	15.5
Storm	75	20.6
Hurricane	90 & over	29.6

~~Energy what for man of~~

Primers Diazobenzene Nitrate
proposed as a primer Berthelot
page 291 instead of Hg fulminate

Dangerous —

Sept 15 – 9 am – boards in shadow
light clouds – blue patches, can
look at sun thru clouds only
for an instant.
sky line much less hazy
than No 3 last day
wind breeze. a few patches
Caps –
No 6 lightest
No 1 + 5 next lightest
No 4
3
2
2 + 3 about same –

Why can't Instrument
measure vel of wind

Why wont Theodors'
wheel with photo on it
go on weather

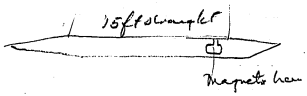
on pilot deck looking all
boards against sea
background –
3 best seen observed
by white cloud –
can just look at it
Now little lighter
No 2 best against
invisible badly painted
warm –
against sea 3 most noticeable
" sky 6 "

Send for my Balls
Dr. Chemistry -

Have the 5 boards photographed down on 4X4 or 3X3

Sudan 1500 ft away
Eye. 8½ ft above sea - ½ of the Board is against background of the sea

10 Twit shutter will take cars of moonlight nights of any degree



water carried along by friction, Rankin says 10%. may have to be 20 feet long

C13L

Boards Sept 18 pm - not furnished

No 1 - all black no white stripes on yet
2 10% white
3 20 "
4 30 "
5 40 "
6 50
7 60
8 } all white not yet striped
9
10

Sun obscured by thin fleecy clouds
Observation from deck
of Drachen 1500 ft aceby
d East Visible by aquinft -

3.37 pm	# 3
3 55	2 + 3
3 56	2
3 57	2
3 58 Clouds vary	3
4 04 }	2
4 13 }	
4 25	3
4 35	2
4 40	2

4.47 pm -	# 3
5 25	3
6 pm	4
6.15. dusk	4

Disappearance

6.20	gone	# 4
6 32	"	5
6 36		6

6 41 No 1 + 2 + the 3 white visible by glass

6.54 - No 1 + 2 + 3 whites barely visible with glass

6 55 - all gone except 1 + 2
6 56 " " 1
6 57 All gone & its pretty dark

Very little haze, clear day only fleecy clouds much blue sky. Sky look dirty white.

Nerum figures out that at 4 miles away from periscope assuming the 26 ft German was equivalent to 23 ft of good sight that 2 feet of a Cargo boat would have a sea background

& the 6 columns of ship would be on sky line

further Sub goes less of ship on sea background

with Eye Vision from Sub 16 ft up only 1/2 foot of ship would be on sea background 4 miles distance

If with 26' periscope equally 22 ft + ship 6 miles away! – all on horizon

HCl Condenses to a liquid at 10° Cent + 40 atmospheres 1.27 Specgravity for bombs fumes

1 at HCl Combines 3 atom H_2O

Anhydrous dont attack Mg Zn or Fe

~~20th~~

~~left Grassmoot at 1150 full speed all at 1239 3rd head moss bles 1st sand from Pilot at~~

When Sub Views used in sum the 1

Fire liquid HCl Bow gun
of " NHy Stern gun
both make fog with #20 of
air & afterwards deformed
together & make NHyCl
smoke —

Cloudy Very Hazy sunset
Sun 8.0 hour up
6 10 pm 15 min after
sun set. #6 entirely
invisible from sachem
1500 ft away #10
Very white & conspicuous
No 1 & 2 more conspicuous

tested the white of
No 3 with a little
pale ultramarine blue

it appears to make it a
little darker than No 2
Can very faintly see with
glass at 6 pm that
board has blush cast

Yellow pine boards still
visible (unpainted)
but nothing beks 9 & 10
— 1 2 3 + 4 + 5 is about
as conspicuous as yellow
pine — faint Very

6 17 pm 1 2 3 4 5 + 7 8 9 10
6 19 1 2 3 4 — 7 8 9 10 visible
6 20 1 2 3 4 — 8 9 10
6 25 — 9 + 10 —— 1 2 3 4
yellow pine row
6 27 — 10 — 1 2 3 4
6 30 —— 1 2 3 4 faint

450 am - good aurora
60 ft up reddish thence
to horizon blue —
water bright from
reflection + —
Boards all black
Can see #10 a
little lighter than
No 1 —
A + B just as black
as others — I can
see to write OK
Clouds all around
horizon, clear above

5 am - arc searchlight
Can be seen on every
board, 8 9 + 10 very
bright white, covers
380 ft round.
22 amp arc —

Quite light on ship
good light coming deep
shadows from light
reflected from the western
sky
No 10 - shows whiter
than No 1
B with eye shows yellow
A Dont - angle probably
as it gets lighter the

are has less & less effect
so that at 5.20 it's only
just perceptible.
Apparently the sky
line gets brighter faster
than the light on
Sky No 10 gets.
No 3 - Blued is same
black as 1 & 2 —
both A & B very yellow
& distinctness from other
No 8 & 9 & 10 look
white, Especially 10
but sky line being so
much brighter 10 is
so sharp Silhouette
& darkish
Aurora up higher
now & nearly gone,
sky line blush white

There may be some change
with front light yet, = sun
not up yet, 5.30 sun up I examined
very faint, just discovered it
9 & 10 very white but
sky line so much brighter
its a clear silhouette -
still blush Caste to sky
line - slightest squirt
blacken No 10 -
but Can see dif
in tints from 1 to 10

Eq.

There is no doubt but that for
Early morning best pure white
paint is by far the best of it
Could be strongly illuminated
it would be better still
When sun gets up to where
it is hard to look at it
The silhouettes are even
sharper probably on account
brighter sky line - fleecy
Clouds coming in overhead
Easily -

Cant see Plum Island
West, all blue haze

Can just see land on the
right with Naked Eye but
not with glasses. Land
nearest shore D.E

Lam

to here

at 6 AM - the sky gets so
bright in the East | that Even
10 ~~[illegible]~~ only shows a
tint of white - | A black
B dark with yellow tint.

Its doubtful if any
amount of illumination by
fast digits will convert -
The very bright sky line in
the East | Mirror probably
would do something -
& probably only hazy

A sub, in the morning a boat
in West from East
would be nothing very
far on account of the
haze - ~~[illegible]~~

at 630 am sky line East so bright all boards are black — only hope would be mirrors to reflect this strong light on boards —

S end here looking West
N + S would see thru
deep hazy + Ships be ok

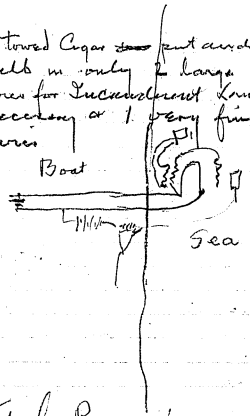
Even the 2 buoys 600 yards to North E look hazy Cant see plum related on the lighthouse N E

The strong silhouette is really due to want of light on boards

with little test boards on ship held up in shadow white shows ok for sky line but if put in deep shade it shows as dark as No 10 at 715 am —

9 am, still silhouette but not so sharp No 10 somewhat better than No 1 —

In towed Cigar ~~[illegible]~~ put another
built in only a large
wave for Incandescent Lamp
necessary or 1 very fine
wave



Telegh Range finder
Hope to come down
to Oyssmport bring
Cylinder Recorder
Dark Records &
Microscope want
Record sounds from
Europe

also funnel & to see Wrens
& bring the 40/1000
Recorders as they work bad
at 100 times
of Phonograph to listen
with /

25

Prussian blue stripes
3.15. slight flaky clouds
on sun No 2 | 90%
Blue best but little
whiter than Sky line – Sodium
600 yards away
Dont have the dirty glum of
Lampblack more like
Sky line/Color Think
the Ultramarine was best
as most ~~[illegible]~~
Prussian blue + gnco
White sun may be slightly
Nearer to equator
with Wilbur and

I notice also No 1 has tinges of lavender which would most pronounced with ultraviolet 80% Ultra.

3 20. No 1. 95%, as best
Can squint at it fine

No doubt the blue
Moon mainly imitates
Sky line & when sun
is West.

Oct 3 26. Cloud Come over
sun & best was 6 70% blue

5 30 Sun out again
No 1 best.
in 2 seconds Clouds &
No 6 best, in 1 second
No 1 best.

3 36 - now all too light
The depth of shade in this
blue not enough to do the
biz - with bright unclouded
skies, it would require
97½ to 99% Blue -

Next time must make the
blue deeper shade.

It wants a blue that seems
settled - as it approximates
sky line Color much
better than Lamps black

5% is not fine enough
should be only 2½%
difference

3 42 Cent are Cupola on
longeland 11 mile.
hazy - due only to gradient
of sun

3.45 No 1 entirely too white
Clear sun Cant squint it
anywhere near out.

6 Boards now stripped
Can even see stripes on
No 1 with shade.

3.50 pm No 6 actually
appears white Even No 1
is whitish.

It is probably we have too
much white lead in Prussian
blue & that pure pigment
like Ultramarine or
Cobalt blue is better with
no white mixed.

4.15 No 1 & 7 too
whitish.

4.17 No 1 by squint has a
greenish hint also it
reflects light not matte
Enough No 2 about,

No 1 is 95% Prussian blue
thinned by lead white to
a shade as deep as possible
without making it appear
black in the shade. Then 5%
less up to No 12

Reason of Matte is probably
due to Prussian blue on
a Colloid whereas Ultramarine
is ground up particles
of a blue transparent
substance —

4.25 all slightly white,
+ NG + Cant be squinted
in the least,

437 - only Gardiners Island
Can be see
Woman on Big Gully getting
very hungry - dello L Hymn

Something wrong with No 1
more than board out of matte
the Very unevenly painted
Board is Tip down to
South -

452 White boards
unpainted have a
yellowish tint here
glasses

455 Hazy at Big Gull
decorns. Cannot see window
in Painted brick house
+ a white line is forming
at Edge like island
far away

5 pm 3 4 5 6 7 stripped
now through glass look
decidedly yellow when
squinted - 1 2 + 3 just a
shade of yellow - 8 boards
done quit for the day 505

507 - Sun seems to be about
1 hour above horizon + in
the yellow part, that probably
accounts for yellow tinge
on boards - sky line is west
yellowish -

512 No 1 now look green
+ seems evenly painted
whereas west 1 2 + 3 seem
uneven

No 1 Two boards
Enormous difference in tint
between 1 + 2

Cant sqeunt out anything in the least,

5 25 started, 3 or 4 sqeunts best, 1 dark

5 27 - 5 best Look Red
5 30 6 "
5 31 6 "
5 32 6 gone
5 33 7 & 8 gone
5 34 1 2 3 4 5 6 vis
5 35 " "
5 37 " " glasses
5 38 1 2 3 4 5 & 6 vis "
& all above sky line considerably,

5 40 1 2 & 3 vis in glasses — Dock still vis not 5 ft out as high tide

5 42 - 1 2 3 vis in glasses also dock - 5 faints very conspicuous even with Eyes

5 45 ditto —

5 46 Cant see 1 2 & 3 whites ~~[illegible]~~ also Dock

5 47 Dock all gone Except 4 whites Conspicuous Yellow with Eyes, Just Hazy. very + yet boards are above water line

quitting dusk

5 50 see outside plain in glasses

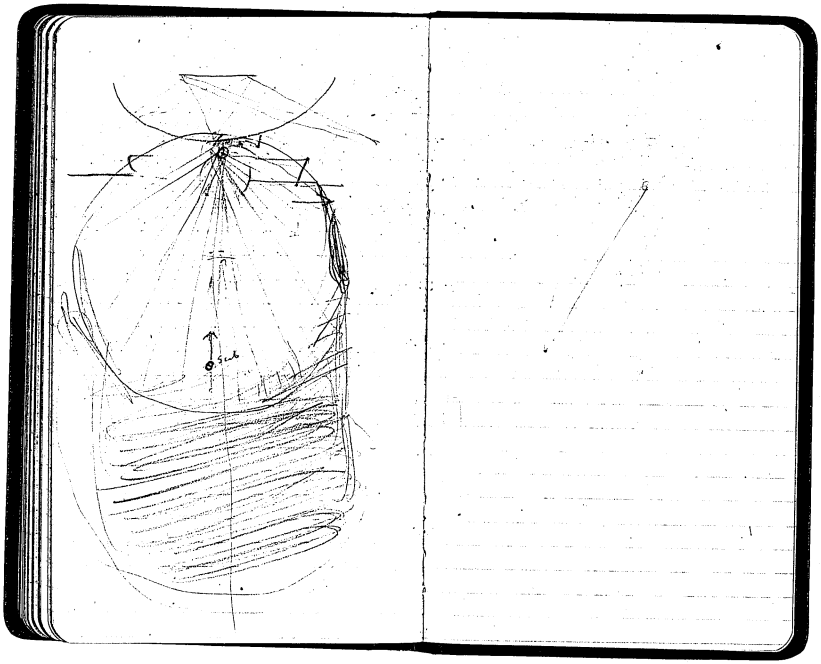
551 - whites trawling
553 all gone

PHENOMENON

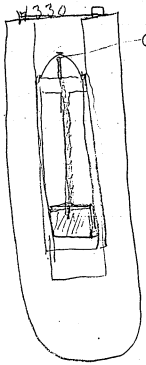
It will be essential I think if we are to make Cargo boats invisible at Short distances - & if Hull is not perfectly Camouflaged - to put a line of shutters from End to End of Boat between Bridge deck & Stern & Bow Houses to prevent U Boat seeing the sea between - modification & see if its as

We used to paint the single ultramarine the other day that was so good
Ultramarine Co
38 Park Row
11 M marked

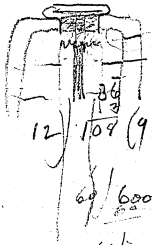
As pressure on blue was too light we now mix up 11 M with oil & very little Turp also added about 5 Thimblefuls Dryer - Hot 2 to 3 mark
Product - Used cooled
Dilution - We shall paint over on top of the Prussian blue
The paint is about as black with 11 M as it can be made & work practically with Brush


Sub

60) 80000 (1330
60
200
180
200



4 @ 5 sec
fuse wire



12) 108 (9 ft

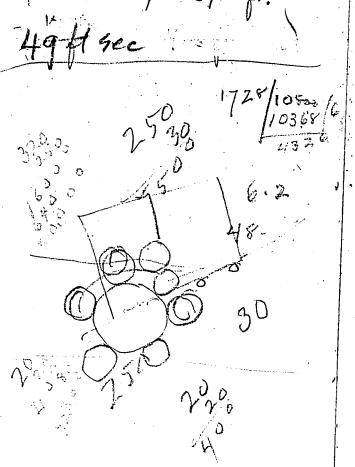
60) 6000 (100
900

60) 4200 (66 ft sec
360
600

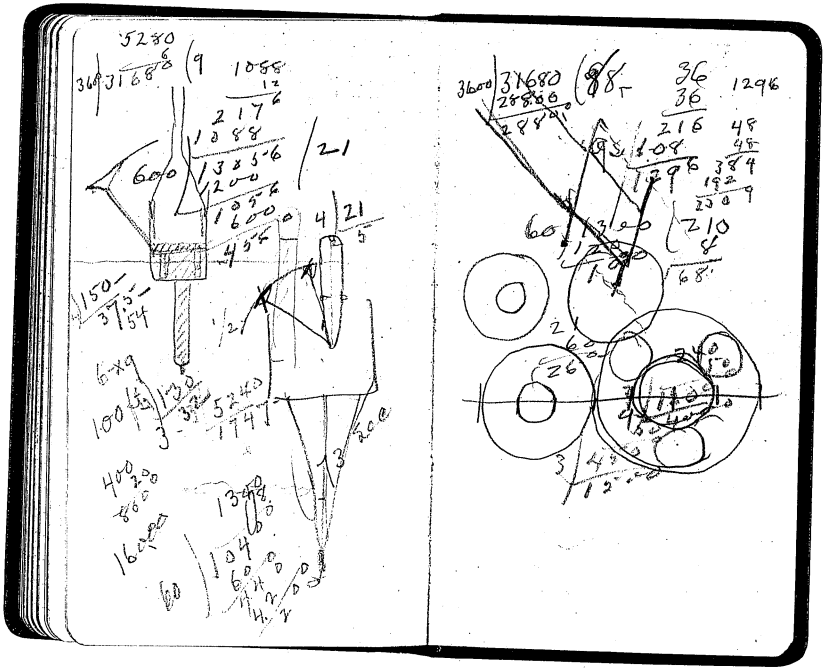
66) 1000 (15 sec
660
340

Torpedo 12500 yrds 37500 ft.

49 ft sec



60 | 395 length
360
35
5 length in min =
100 = 300 | 10800 |
37.5

6.6 12
12

12 5280
15
26400
5280
792
20 | 7920
1980
22 ft second
37
74
820 ft